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BRITISH AFFAIRS

A QUARTERLY REVIEW

1958: THE ECONOMIC BACKGROUND
MEASURES AGAINST INFLATION
TRADE IN EUROPE: THE ISSUE AT STAKE
CONTROLLING THE FUSION REACTION
SECONDARY EDUCATION: A SWING TO SCIENCE?
NO BACKSLIDING ON STERLING
BRITAIN'S CONTRIBUTION TO PEACE AND SECURITY
The 1958 Defense White Paper Summarized

BRITAIN'S OVERSEAS TRADE
U.K. EXPORT ACHIEVEMENTS
LABOR NEWS FROM BRITAIN
BOOK REVIEWS

VOL. II, NO. 1 — MARCH 1958

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BRITISH AFFAIRS

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The British financial year begins in April. The Budget will show whether world economic trends call for a change in Britain's domestic policies. In the opening months of the year, Britain was still concentrating on the elimination of inflation and building up the gold and dollar reserves.

1958: THE ECONOMIC BACKGROUND

On taking office on January 6, 1958 the new Chancellor of the Exchequer, the Right Hon. Derick Heathcoat Amory, said:

"The change of Chancellor means no change in the Government's economic or financial policy. The measures which have been successful over recent months in improving our economic position will be maintained as long as is necessary without relaxation. Public expenditure, both capital and current, will continue to be sternly restricted. The Government will adopt the same criteria in regard to its own expenditure as it has been urging others to adopt in relation to theirs.

"The strengthening of sterling and a stable internal price level are the dominating aims of the Government's economic policies, and nothing whatever will take precedence over them."

THE STRENGTH OF STERLING

The Government's stabilization program has played its part in the massive strengthening of sterling since last summer. The *gold and dollar reserves* have increased steadily. In the last quarter of 1957 they rose \$423 million (a drawing of \$250 million from the Ex-Im Bank is included) and in January 1958 by a further \$131 million to a total of \$2,404 million, the mid-1956 or "pre-Suez" level. The exchange rate for sterling was consistently above the official mean rate of \$2.80 in the last quarter of the year and over much of the time and since has been near the "ceiling" of \$2.82.

Movements of funds from other centers to London, in order to take advantage of high interest rates, may have played some part in the recent improvement but the authorities appear to believe that this had not be-

come a significant factor during the period under review. In the main, the improvement is attributed to the commercial demand for sterling.

On the *current balance of payments*, the Chancellor said:

"I see no reason to vary the statement of my predecessor that we can hope for a surplus during the current year to June 1958, rather larger than the £211 million surplus we earned the previous year."

A separate note on the *trade figures* for 1957, when both exports and imports were at record levels, is included in this issue, but the Chancellor introduced a warning note:

"The terms of trade are very favorable to us, but the income of some of our main customers is falling. Looking ahead, we shall have to fight much harder to maintain the level of our exports . . ."

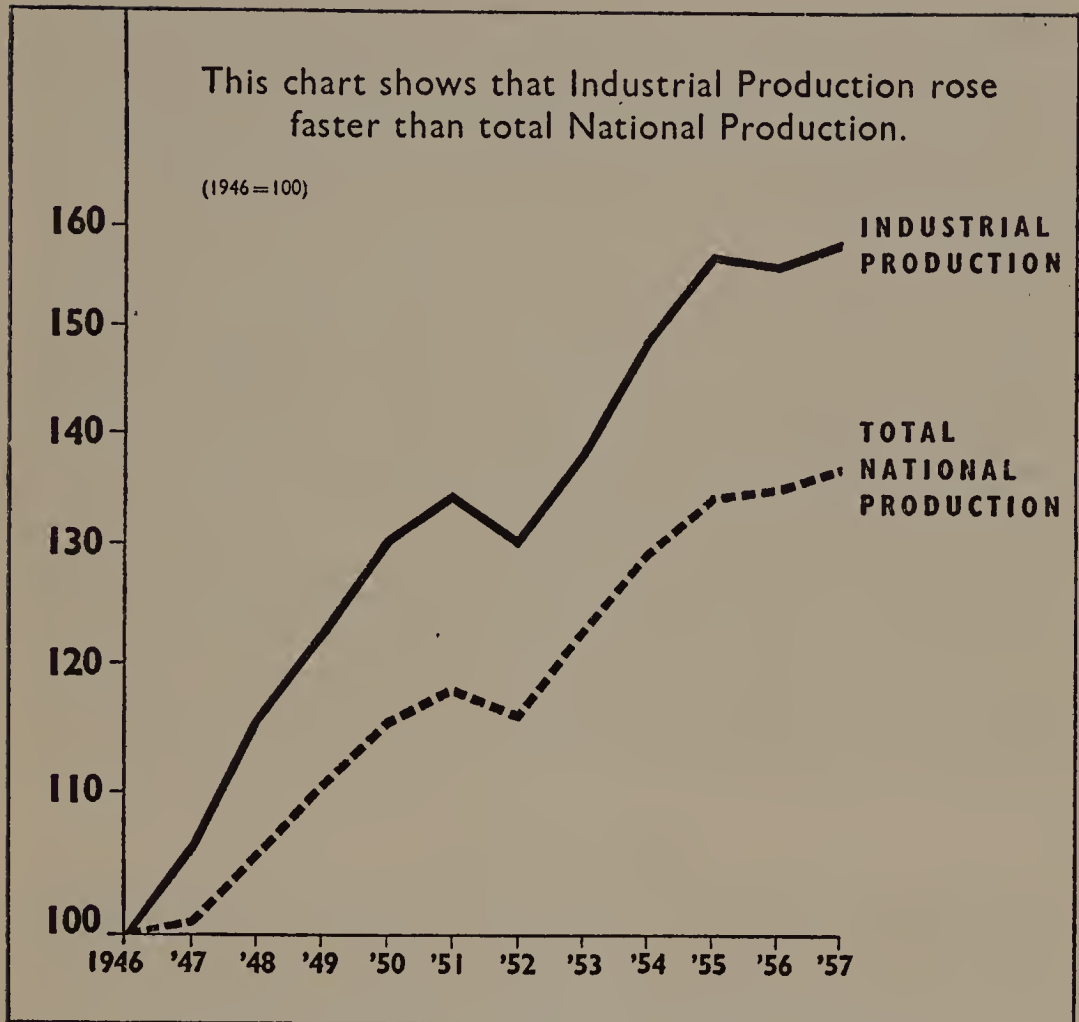
This warning is a reminder of the direct link between external policies and domestic stabilization which a country like Britain, living on world trade, can never be allowed to forget. The wave of speculation in sterling last summer was due primarily to external factors, but with reserves low in relation to the international uses of sterling which they must finance, and the possibility of a world wide trade recession, these external developments demand Government action for eliminating the cost-price spiral at home so that, as Mr. Amory said, Britain would be "in strong and vigorous fettle to meet whatever rough weather may lie ahead."

DOMESTIC STABILIZATION

In the debate on the economic situation on January 23, Mr. Amory reiterated the Government's home-front policy in these terms:

"Inflation is still the enemy. The firm anti-inflationary measures adopted last September must be continued without relaxation as long as is necessary. Our aims remain exactly as they were, stable prices at home and a stronger £ abroad."

The Government's policy does not involve cutting back production or useful investment, but seeks to limit the still prevalent expansive tendencies, so that the country as a whole does not bid up the price of the available resources or stimulate a demand which can only be satisfied from abroad, at the risk of frittering away hard-won foreign exchange. This has inevitably resulted in a slowing of the economic tempo. But the "squeeze" also results in the release of resources from less essential to more essential production. Thus, exports rose in 1957 more than production. Production was relatively stable and the tendency for boom conditions to run on into the earlier part of 1957 slowed down in the latter part of the year. The over-tight conditions in the labor market also showed signs of easing. But despite these trends towards stability the rise in home costs and final



Ratio scale. Total national production = gross domestic product at 1948 factor cost; 1957 figure based on the first three quarters.

prices of goods and services had not entirely ceased in the latter part of 1957.

A look at the main indices confirms this general picture.

PRODUCTION

In 1957 total *industrial production* was up by about $1\frac{1}{2}$ per cent on 1956. This levelling off in the industrial sector as a whole should not obscure continuing expansion in certain key sectors. For the first 9 months of 1957 (the latest figures available) chemicals were up $4\frac{1}{2}\%$, and engineering, shipbuilding and electrical goods $3\frac{1}{2}\%$. Steel output in 1957 rose by 5 per cent.

Building and Contracting. In the first 9 months of 1957 building and contracting was slightly above the year earlier but the area of industrial building approved in 1957 was about 10% below that of 1956. Analyses on a quarterly basis confirm a marked levelling off. For example the value of output in house building in the third quarter was 5½ % below a year earlier.

Manpower. The slight easing in the demand for labor was reflected in an increase in unemployment between October and December which was more than seasonal. At 361,000, the December figure was higher than in the three previous years, while the number of unfilled vacancies reported fell fractionally, to 236,000, the lowest December figure since 1952. The unemployment figure for December was still no more than 1.8 per cent of the employable population, and the demand for the more skilled grades of labor has hardly abated.

Manpower productivity in the manufacturing industries can profit from the big increase in fixed capital investment over the past few years, but the present stabilization program, designed to keep output steady, has probably delayed the full utilization of the new resources now installed and available, so their potential effect on efficiency and production costs has still to be realized.

DOMESTIC DEMAND

The volume of *retail trade* (which accounts for about a half of consumer spending) was little changed in October 1957 over October 1956, a fall in sales of clothing and footwear offsetting a rise in household goods expenditure which, in the third quarter, rose 11½ % over the corresponding 1956 figure.

Fixed investment (machine tools etc.) is now the subject of a quarterly enquiry which suggests that capital spending by manufacturing industry, a major demand factor, was only up 4% by value on a year earlier, compared with a 13% increase between the first quarters of 1956 and 1957. Investment in the public sector (roads and railroads, power, defense etc.) rose 6%. Since 1956 the boom in manufacturing investment has been slowing down almost continuously but remains at a high level.

Public expenditure by central and local Government authorities, the third important component of home demand, was about the same between the two periods. In real terms it was probably lower.

The defense estimates for 1958/59 are reviewed elsewhere. The overall estimates for the next financial year, published as we go to press, show an increase of less than £50 millions over the current year. This increase

is very much less than the increase in costs alone as measured by price movements. It therefore represents substantial economies.

Generally, on public Expenditure the new Chancellor said: "Many people have the impression that Government expenditure has been absorbing an ever-growing proportion of our resources; this is not the case. Between 1951-52 and 1956-57, Government expenditure has fallen fairly steadily from 32% to 27% of the gross national product — quite an achievement."

Inventories. Stockbuilding was on a bigger scale in the first three quarters of 1957 than in the same period of 1956 and seems to have played a significant part in the sustaining home demand and output.

Bank Credit. Bank rate has remained at 7% since last September 19. Its effects are not yet reflected in the published figures apart from those of the clearing banks whose figures for advances in the last three months of 1957 show a reduction of £108 million. In the corresponding quarter of 1956 they rose by £27 million. The Chancellor said on January 23:

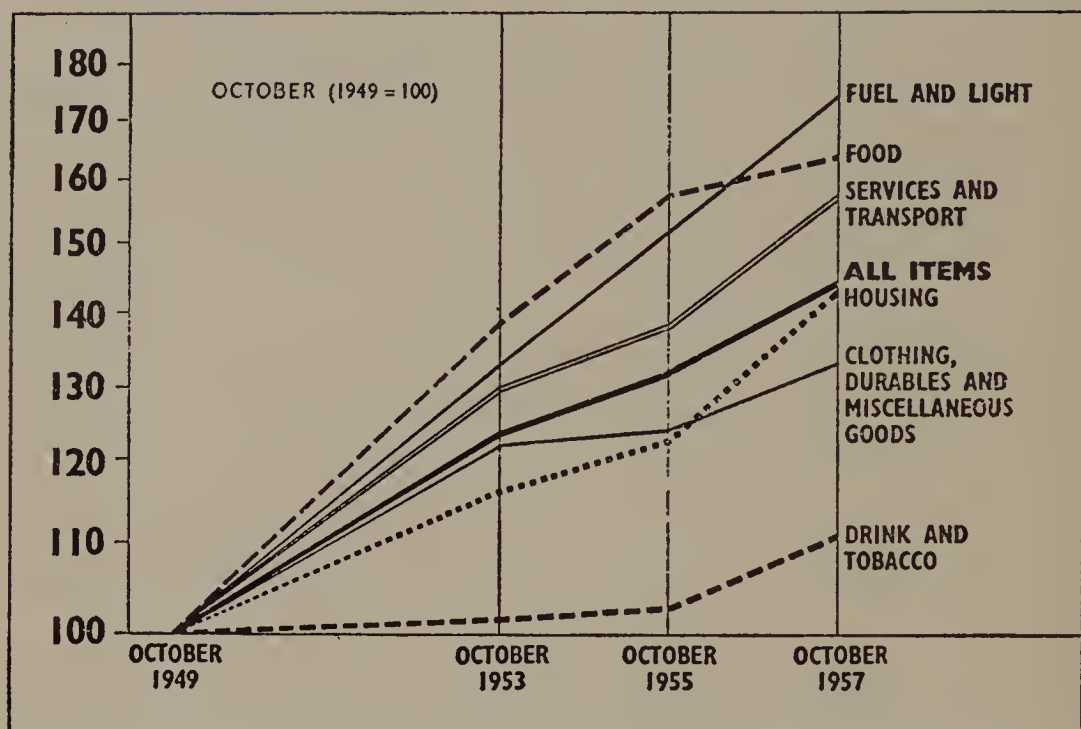
"I am not going to be lured into predicting the duration of the present bank rate. . . . I shall confine myself to saying that events since 19th September last have shown the effectiveness of the bank rate in counter-acting external pressure of sterling, and also in supporting our internal measures."

COSTS AND PRICES

In the first half of 1957 incomes continued to grow more rapidly than output, causing a further rise in domestic production costs per unit; and the indications are that this persisted in the third quarter. Later figures are not available.

Taking the first nine months as a whole, the volume of the nation's output was about $1\frac{1}{2}\%$ higher than in the corresponding months of 1956; but the total of money incomes (wages, salaries, profits, etc.) was 5% higher. It is estimated that, per unit of output, labor costs were up $4\frac{1}{2}\%$ and gross profit incomes* $2\frac{1}{2}\%$. Import costs account for about one-fifth of total costs; and while the fall in import prices during the year contributed to a decline in retail food prices in the second half, it had not yet been reflected in lower prices for most manufactures (other than textiles), either in the factories and warehouses or in the shops. In December the price index of basic materials (other than fuel) used in manufacturing industry was over 10% down on a year earlier. The wholesale price index of manufactures (other than food, fuel, and tobacco)

*comprising gross profits, income from self-employment and rent, before depreciation, but after stock appreciation.



Ratio scale. Source: R. G. D. Allen. *Movements in retail prices since 1953*, *Economica*, February, 1958.

was, however, 3% up, and the retail price index, despite considerable falls in some foods, was 4½ % up, in part because of higher rents.

CONCLUSION

In the opening months of 1958, inflation, as the Chancellor said, is still the enemy; but the factors that most directly stimulate rises in both prices and wages are not exerting the pressures which, so often in the past, have been irresistible. World commodity prices are down; the scope for more, and more efficient production has been greatly increased by the extra capacity installed in the past three years; excess demand, both for consumer and investment goods, has been cut back in both the private and public sectors of the economy. The latest round of Government measures including the 7% bank rate will have furthered this process. Altogether, in 1958 Britain has an excellent opportunity to win a decisive victory over inflation.

Britain is fighting inflation mainly by operating on the supply of money and credit. An account of the budgetary, financial, and credit measures taken since late 1955 is given below.

Measures Against Inflation

“The purpose . . . is to limit the availability of money; to serve notice on ourselves and on the world outside that we are no longer prepared to underwrite through the Banking system or through spending by the Government, the consequences of inflationary actions.”

*Chancellor of the Exchequer
September 19, 1957*

BUDGET MEASURES

Supplementary Budget 1955-56 (26 October 1955)

1. Profits tax on distributed profits increased from 22½% to 27½%.
2. Purchase tax rates raised by one-fifth from 25, 50 and 75 per cent to 30, 60 and 90 per cent respectively; many household goods which had been exempt made subject to the 30 per cent rate.

Budget 1956-57

1. Budget surplus (actual) £290 millions.
2. Profits tax on distributed profits raised from 27½ per cent to 30 per cent, on undistributed profits from 2½ to 3 per cent.
3. Incentives to new personal savings:
 - New issue of National Savings Certificates.
 - A new 4½% Defense Bond
 - The first £15 of income from deposits in Post Office Savings Banks etc., to be exempt from tax.
 - The “Premium Bond” with the chance of a tax-free prize instead of interest.

Budget 1957-58

1. Budget surplus (planned) of £460 million.
2. Tax exemptions of about £100 million as incentives.

BANK RATE

16 February 1956 — Bank rate raised from $4\frac{1}{2}\%$ to $5\frac{1}{2}\%$

7 February 1957 — Bank rate reduced to 5% (a technical market adjustment).

19 September 1957 — Bank rate raised to 7% .

INSTALMENT BUYING

26 July 1955 — The minimum deposit required on certain instalment buying concessions including motor cars, radio and television sets, refrigerators, washing machines, etc., increased to $33\frac{1}{3}\%$.

17 February 1956 — The minimum deposits for consumer goods were raised from 15% and $33\frac{1}{3}\%$ (according to the type of goods) to 20% and 50% . The control was extended to a wide range of capital goods which were made subject to a 50% down payment and a maximum repayment period of two years. (The minimum deposit for cars etc., was reduced from 50% to 20% in December 1956 owing to the severe setback in the industry. The rate was raised to $33\frac{1}{3}\%$ in May 1957.)

RESTRAINTS TO BORROWING

25 July 1955 — Chancellor asked the banks to achieve a positive and significant reduction in the total of bank advances outstanding.

26 October 1955 — Those concerned with private investment asked to pay heed to spirit of Government's program for slow-down in rate of investment.

17 February 1956 — Further appeal to the banks to reduce advances.

— Capital Issues Committee received new instructions to maintain a critical attitude. Its consent to borrowing proposals to be given only when the purpose "has a definite urgency under current requirements."

13 March 1956 — All new borrowing in excess of £10,000 required to have the endorsement of the Capital Issues Committee (previous figure was £50,000).

April 1957 — Capital Issues Committee would, in future, in examining loans for capital purposes, consider the terms of such loans as well as their purpose.

19 September 1957 — Clearing Banks informed that average level of advances in the next 12 months should be held to the level of the last twelve months. Special considerations might arise, however, in relation to export credits.

LOCAL GOVERNMENT ECONOMIES

26 October 1955 — Local Authorities (County, City, Urban District Councils) asked to review their capital expenditure to ensure that in the ensuing financial year (1956-57) it did not exceed the outlays of 1954-55.

— Housing subsidies granted to Local Authorities substantially reduced.

— Government lending to Local Authorities checked: the Public Works Loan Board before granting advances would “put all applicants on enquiry as to their ability to raise the finance on their own credit, either in the stock market or in the mortgage market.” Any advances granted from the PWLB would pay interest reflecting not Government credit but the rate in the open market for comparable loans.

16 February 1956 — Local Authorities’ school building programs were rephased. Further severe restraints on other capital schemes of Local Authorities.

February 1957 — Legislation proposed to substitute a general grant, which will fall to Local Authorities themselves to dispense, for the percentage grant for specified functions previously made to Local Authorities.

19 September 1957 — Local Authorities, along with other branches of Government, required to hold the level of investment expenditure in the next two years to the level attained in the current financial year.

CENTRAL GOVERNMENT ECONOMIES

26 October 1955 — Government’s own building program re-phased over longer period.

— Post Office and nationalized industries also to make useful saving in capital investment programs for 1956.

16 February 1956 — Cut in subsidies announced for milk and bread (the bread subsidy was abolished from October 1956).

— Nationalized industries announced a further reduction of £50 million in their capital expenditure programs, for 1956. Government capital expenditure plans for 1956 reduced by over £20 million (mainly reduced stockpiling).

April 1956 — Savings of not less than £100 million to be devised on services, including defense, already provided for in the Estimates for that year. (in June 1956, £76 million, and in October 1956 a further £17 million of these economies were announced).

April 1957 — £14 million of Government expenditure per annum was transferred to the consumer by increasing the price of welfare milk and a further £3½ million by increasing the charge for school meals. For the same purpose increases in the National Health Service charges — from 1s. per prescription to 1s. per item on each prescription.

February 1957 — A separate contribution to the cost of the National Health Service was introduced providing an extra £40 million to the Exchequer.

September 1957 — The total of investment by public authorities to be held during the next two years to the level attained in the current year. This included investment by Government Departments, municipal authorities and the nationalized industries, coal, gas and electricity, railroads and civil aviation.

February 1958 — publication of Governments defense estimates for 1958-59. These are £2 million below the 1957-58 estimates, but, as a result of economies, absorb additional charges of over £100 million.

MAKE IT IN BRITAIN

Although about 600 United States and Canadian investment projects of all kinds have been approved in Britain since 1950, the opportunities offered for profitable business ventures are still not too widely known.

The object of this new booklet, **Make it in Britain**, is to tell manufacturers in the United States and Canada how to set about establishing factories in the United Kingdom of Great Britain and Northern Ireland.

Copies are available free of charge from the Circulation Section, British Information Services.

Negotiations for a Free Trade Area to embrace the newly formed Economic Community (six countries) and eleven other countries of Western Europe, are now in hand.

Trade in Europe The Issue At Stake*

Nations have long recognized that in the last analysis their political power depends on their economic strength. What I think is new, and distinguishes the post-war years from earlier periods, is the growing recognition that national prosperity cannot be built on an isolationist foundation, that if it is to be sound and enduring it must be based on international prosperity. Recognition of this truth has given rise in the past ten years to an increasing degree of political co-operation between countries for economic ends; and the advance in wealth and prosperity which this has helped to bring has in its turn made possible — indeed, has encouraged — further experiments in political collaboration.

This process is illustrated on a world-wide scale by the evolution since the war of the International Monetary Fund and the World Bank, and of the General Agreement on Tariffs and Trade. It is also illustrated by the British Commonwealth of Nations, which, although it has no formal constitutional structure, exemplifies the fostering of economic strength through political partnership. But surely the most striking recent example is the association which has been developed inside Western Europe.

OEEC: THE "SIX" AND THE "NON-SIX"

Coming together in 1948, their economies devastated and weakened, the countries of the Organization for European Economic Co-operation, building on the original foundation of Marshall Aid, have succeeded in increasing the volume of their trade with each other by something like 150 per cent, and their combined output by around fifty per cent. This mighty co-operative effort towards freer trade and payments in Western Europe has forged an important link in the wider association to which the North Atlantic Powers and the Commonwealth contribute, and has thereby strengthened the whole Western World.

*This article by Mr. Reginald Maudling, M.P., Paymaster-General and Minister responsible for the European Free Trade Area negotiations appeared in the Winter 1957-58 issue of the "European-Atlantic Review."

Now another great challenge confronts Western Europe: the movement towards still closer European integration. Let me explain straight-away that we in Britain believe that the importance of this challenge cannot be exaggerated. In all the technical talk of tariff rates, harmonization, rules of origin, and so on, it is all too easy to lose sight of the fundamental issue that is at stake. That issue is whether Western European unity, so carefully and so painfully built up over the last decade, is to be maintained and strengthened, or whether it is to be split asunder, resulting in two — or even more — little Western Europes.

There is no doubt that the European Economic Community, and the institutions which are allied with it in the spheres of coal and steel and atomic energy, represent much more far-reaching development than the kind of co-operation which has been developed in OEEC over the past decade. The aim of the Six countries is to create not merely a larger market, but a new political community. For us in Britain, this type of approach, while it has our admiration and best wishes, goes too far, if only because it cuts across our economic and political links with the Commonwealth. There are other European countries who, for various reasons, are also unable to go along with the Six. Unless therefore some association can be arranged between the Six and the rest of us, Western Europe will be divided by growing economic barriers. Much of its post-war achievement would be undone and if economic co-operation were to go, could we continue to work in harmony in the political, military and strategic fields? If, as I believe, we could not, we would be placing in jeopardy our future and our independence. Britain is not alone in this view. The Danish Prime Minister for example, has recently put the issue as follows: "Could Europe, which already suffers from the division between East and West, tolerate being further divided into 'the Six' and 'the non-Six'? A further division would not be to Europe's advantage, and would also entail a risk to the unity of the free Western world."

UNITY IN THE FREE TRADE AREA

Britain therefore strongly supports the idea of a Free Trade Area to complement the European Economic Community. It would offer the advantages of an even larger market than that of the Community, comprising some 250 million people. These advantages — the greater opportunities for large-scale production, more division of labor and other resources, and bigger investment programs — become more marked each year as the pace of research quickens and technological advances increase the economies of scale. The results of scientific progress could spread more easily across frontiers and standards of living rise faster.

THE EUROPEAN ECONOMIC COMMUNITY...



... are proposing to remove all tariff walls between them and to create a common tariff wall around them — A Customs Union.



THE FREE TRADE AREA...



... Europe will thus be divided into two or more economic camps — unless the Free Trade Area is introduced.

Under it, eleven other countries could abolish tariffs between themselves and between themselves and the customs union. They would not be part of the Customs Union: They would be free to negotiate their own tariffs with the rest of the world.

Certainly, there would be less political and economic integration than is prescribed by the Treaty of Rome. Even so, with the progressive reduction of barriers to free trade, we could not help but grow together — politically as well as economically — as a community of nations with common objectives.

One major problem, which is as much political as economic, is what arrangements should be made for agriculture in any Free Trade Area. Some countries take the view that such arrangements must be made if a Free Trade Area is to achieve a proper balance between farm and factory. The OEEC countries have long agreed that they should co-operate in agriculture, with the object of expanding their trade in its products. But few, if any, of them would be willing to do away with their system of protection for their home farmers. Moreover, some of them have long-standing relations with overseas territories which they want to continue. In Britain's case the preferences granted to Commonwealth foodstuffs must be maintained. In short, all European nations recognize that for social, political, and economic reasons, agriculture is a special problem, requiring special treatment. The signatories of the Treaty of Rome are certainly no exception, and while they have accepted the eventual removal of tariff and quota barriers between themselves, they propose to continue to protect agriculture through managed markets. The British Government, for its part, has advanced certain proposals for agriculture, to operate side by side with the development of the Free Trade Area; and these proposals have been accepted by the other OEEC countries as a basis for negotiation.

AGREEMENT TO NEGOTIATE

At its meeting last October the OEEC Council put on record its determination to create a European Free Trade Area, which would take in all members of OEEC and come into effect parallel with the Treaty of Rome. The Council also affirmed its determination to reach agreement on methods to further co-operation between all members on agricultural affairs, with the object of bringing about a further increase in trade in agricultural products. The task now is to thrash out, on the basis of these declarations, an agreement that is acceptable to all.

Agriculture is, of course, not the only problem. It is bound to be difficult to arrange a close association like the Free Trade Area between seventeen countries, with different institutions and policies and in differing stages of industrial development. But in my opinion some of the difficulties may well prove more apparent than real; with an all-round improvement in prosperity and living standards consequent upon a

bigger market, they should tend to disappear.

This is not the place for me to attempt to forecast whether or not we shall succeed. But I am sure that if we are to succeed there must be an intense political desire throughout Western Europe to master the technical difficulties for the sake of the future prosperity and happiness of 250 million people. I cannot do better in conclusion than quote what the Prime Minister, Mr. Harold Macmillan, said on the matter in the House of Commons on November 5:

“... Neither the United Kingdom nor any other participating country is prepared to enter a Free Trade Area at any price. Equally, none of us can afford to let the negotiations fail, for the price of failure may be very heavy indeed. It might well mean not only the economic but the political division of Europe, already tragically divided, and thus prove a grievous blow to the strength and unity of the Western alliance.”

1958 Edition

“BRITAIN”

An Official Handbook

For ten years now *Britain: An Official Handbook* has been a well-thumbed standard reference work. The 1958 edition of 530 pages, 50 photographs, 10 maps, 15 diagrams, 37-page bibliography by section, and full index, is bigger and more useful than ever.

All aspects of British life are covered including nuclear energy, television, and industrial research as well as the older staples of government, defense, agriculture, manufacturing, education, religion, and science. Included is a large fold-in colored map.

Copies may be obtained from B.I.S. Sales Section.

Price: \$3.78 plus 14 cents mailing.

It is hard to grasp the significance of fusion reactions: the next few pages bring together some of the clarifying statements.

Controlling The Fusion Reaction

I. SIGNIFICANT EXPERIMENTS

On January 23, 1958 simultaneous statements in the United States and Britain described the results of research work in both countries on fusion reactions.

“Interdependence” in scientific work has reasserted itself to the benefit of researchers in both countries. This has been freely acknowledged by those in charge of the experiments on both sides of the Atlantic. The technical papers from both countries were first published on January 24th, 1958 in NATURE — a weekly scientific journal which, since it started almost 90 years ago, has come to be the main channel of free communication between scientists of all countries.

Modest claims were made by the scientists but there was no disguising the tremendous possibilities opened up by this research. Editorially, NATURE had this to say, and posed a question which laymen as well as scientists will ponder:

“In 1831, Michael Faraday discovered electromagnetic induction. His apparatus was of the simplest kind, consisting of a ring of iron on which two coils of wire insulated with ‘twine and calico’ were wound, and a compass needle as detector. The experiment was not a chance affair, for his thoughts had turned repeatedly to the subject, and he had tried some experiments, but without success. Then he hit upon the correct sequence of events, and the experiment succeeded. Electricity had been generated in one simple circuit by making and breaking another circuit. From that experiment the electrical industry was born — the electrical age was initiated; and although its growth was at first slow, it now dominates the industrial world.

“The new work on thermonuclear reactions is at present a laboratory experiment, albeit with most complex and costly equipment and even the risk of dangerous irradiation; it is clearly a first step, even as Faraday’s experiment was. Life on the Earth has always depended on nuclear reactions in the Sun, and now it seems that man is learning to reproduce those reactions in the laboratory. Are we witnessing the birth of a new age — that of the utilization of man-made thermonuclear reactions?”

II. RESULTS WITH HARWELL'S ZETA*

Research at Harwell with the latest apparatus had led British scientists to the conclusion that control of thermonuclear reactions for electricity generation may well be a possibility for the future, though its practical application is still a long way off.

The operation of present atomic power reactors is based on the fission (or splitting) of atoms. The possibility now being explored is the harnessing of power from the fusion (or joining) of atoms, which provides the heat for the stars.

Results obtained from the Harwell apparatus ZETA suggest that "thermonuclear neutrons" have been obtained, but further experiments will be necessary before this can be proved conclusively. Temperatures reached in this apparatus have been as high as 5 million degrees centigrade, higher than the measured surface temperatures of any star.

Many major problems have still to be solved before its practical application can be seriously considered, and the work must be expected to remain in the research stage for many years yet. If it proves ultimately possible to construct a power station operating on the fusion of deuterium, the oceans of the world will provide a virtually inexhaustible source of fuel.

On August 12, 1957, a large experimental apparatus for studying the controlled release of energy from thermonuclear reactions was started up at the Atomic Energy Research Establishment, Harwell. On August 30, this apparatus was first operated under conditions that produced nuclear reactions. Neutrons emitted in these reactions were observed when deuterium gas was heated electrically to temperatures in the region from 2 to 5 million degrees centigrade. The hot gas was isolated from the walls for periods of 2 to 5 thousandths of a second. The heating process was repeated every 10 seconds. The high temperatures achieved, together with the relatively long duration for which the hot gas has been isolated from the tube walls, are the most important experimental results obtained so far. While much longer times (perhaps several seconds) are required for a useful power output, there appears to be no fundamental reason why these longer times, together with much higher temperatures, cannot be achieved.

The source of the observed neutrons has not yet been definitely established. There are good reasons to think that they come from thermonuclear reactions, but they could also come from other reactions such as collision of deuterons with the walls of the vessel, or from bombard-

*(The text of a statement issued by the United Kingdom Atomic Energy Authority, January 24th, 1958).

ment of stationary ions by deuterons accelerated by internal electric fields produced in some forms of unstable discharge.

In the ZETA apparatus the number of neutrons produced by each pulse of energy as the current was doubled was roughly that which might be expected from a thermonuclear reaction at the measured temperatures. These temperatures have been definitely established.

III. WHAT ZETA LOOKS LIKE . . .

ZETA is more than a test tube. It stands in a shallow pit. It measures about 30 ft. by 30 ft. It consists of two iron cores (immensely thick wheels each roughly the size of a Greyhound bus in cross section). These are coupled together by the "torus", a doughnut shaped discharge tube of aluminum. The steel framework makes the overall height of the machine about 25 ft. It is enclosed by 3 ft. thick concrete walls as a protection against radiation. Cost — about \$900,000.

ZETA in action is certainly spectacular. Every ten seconds, as 200,000 amps are passed through the gas in the discharge tube, a bluish-purple flash glows brilliantly for a split second on a reflector fitted above a transparent slot set in the wall of the torus to permit observations. From the duration of these flashes, measured by a spectroscope, the heat generated by passing current through the deuterium (or hydrogen) gas can be calculated.

. . . AND HOW IT WORKS*

As the Atomic Energy Authority have stated in their last two annual reports, research has been in progress for some years to investigate the possibility of producing energy in a controlled manner from thermonuclear reactions. Over two years ago design began of a large installation for this work, and in August, 1957, the apparatus, which is called ZETA (for Zero Energy Thermonuclear Assembly) started up, with the results described above. The reaction being studied in ZETA is that in which deuterons (nuclei of the Heavy Hydrogen isotope Deuterium) collide with one another and fuse to form heavier nuclei, releasing energy and neutrons in the process. For fusion to be possible, the deuterons must have enough energy to overcome the initial electrical forces of repulsion between them; this necessitates heating the Deuterium gas to temperatures of millions of degrees centigrade. The hot gas must be kept away from the walls of the container, otherwise it falls in temperature.

*Notes supplied by the UK Atomic Energy Authority.

THE MACHINE

The principle adopted in ZETA is to pass a large electric current through the Deuterium gas. This current sets up an electric discharge in the gas (analogous to the discharge in a neon advertising sign) which heats it, and also produces an intense magnetic field around the column of hot gas. This magnetic field causes the discharge to become constricted, and hence heated still more. Since it also causes the discharge to wriggle about, this field by itself is not enough to keep the discharge away from the walls. The wriggling has been suppressed by applying an additional steady magnetic field parallel to the axis of the tube.

MEASURING RESULTS

The temperature of gas discharges may be determined from measurements on the light emitted by the gas atoms, but measurements of this kind in these experiments present problems because, at the temperature of the discharge, the hot Deuterium atoms are completely stripped of their electrons, and therefore do not emit a line spectrum. One method of solving this problem is to mix with the Deuterium a small quantity of some heavier gas, such as oxygen or nitrogen, the atoms of which are not stripped of all their electrons under these conditions, and to study the special lines emitted by this impurity; the random motion of the high-energy impurity atoms which make many collisions with the Deuterium atoms and so reach the same energy causes the spectral lines to broaden, owing to the "Doppler" effect, and the amount of broadening is a measure of the ion energy. Many measurements by this method have indicated temperatures in the region of 2 to 5 million degrees centigrade.

IV. FUSION PROSPECTS — AN EVALUATION

The world's estimated reserves of coal and oil are expected to last about another 100 years and those of uranium and thorium, now being used in fission reactors, 200 to 300 years. If it proves ultimately possible to construct a power station operating on the fusion of deuterium, the oceans of the world will provide a virtually inexhaustible source of fuel.

Five gallons of sea water yield one gramme of deuterium gas and the present cost of extraction in Britain is two shillings per gramme. The energy stored in one gramme of deuterium is equivalent to the energy stored in 10 tons of coal.

But official statements on both sides of the Atlantic have without exception warned against premature hopes of commercial developments.

Sir John Cockcroft, Director of the Harwell Establishment, reviewed the whole project in a statement published on January 24th 1958. It is a fitting conclusion to this report.

Sir John said that 25 years ago it was discovered in the Cavendish Laboratory at Cambridge that nuclei of heavy hydrogen speeded up by high voltage could join with or fuse together with other nuclei of heavy hydrogen to form helium of mass three, producing neutrons and energy in the process. Processes of this kind provide the energy and heat of the stars. The sun has a central temperature of about 15 million degrees and at this temperature, nuclei of light elements can move about so fast that fusion reactions can occur.

It has long been the ambition of scientists to emulate the stars and to produce in the laboratory temperatures so high that useful energy can be produced from fusion reactors. This was the first stage of their work. The objective was to produce temperatures of about 5 million degrees for a sufficient time for fusion reactions to be produced in deuterium gas at low pressure. During the course of this work a series of tori of increasing size were built, culminating in ZETA.

THE NEXT STAGES

Sir John said that to have achieved temperatures which are a third of those at the center of the sun and to hold them for so long was a remarkable scientific achievement. He had no doubt that within a year ZETA, with some modifications, would far surpass the sun's central temperature.

As explained in the official announcements, the scientists would have to produce very much higher temperatures in order to "break even." So while they were experimenting with ZETA, improving it and studying its performance, they would be designing and building its successor which would aim at achieving these higher temperatures.

"We will have many problems to face in this second stage," continued Sir John. "New methods may have to be devised to heat the gas to higher temperatures and new techniques will be required to measure the temperatures. Even if all goes well and we meet no road blocks, we would still have the further engineering problem of designing and constructing a prototype of a practical and economic thermonuclear power station. This would be Stage Three and after that there would be Stage Four — commercial application."

The educational background of the team of fourteen scientists and engineers working on the 'Zeta' apparatus illustrates the varied pattern of British secondary education now being developed. Before attending their universities or technical colleges, they had variously attended the "grammar," "technical" and "independent" schools described below.

Secondary Education A Swing to Science?

Secondary education in the publicly maintained schools of Great Britain embraces about two million children between the ages of 11 and 18. This school system is administered by local authorities (county or county borough) but just over half of the finance is provided through grants to these authorities by the Central Government. The schooling offered is of three types: "grammar" (which aims at the highest scholastic attainment whether in the arts or the sciences), "technical" or "modern."

Some local authorities combine two of these types in one school; others are experimenting with "comprehensive" schools which aim to bring neighborhood children under one roof regardless of scholastic standards and to give them the opportunity of moving from one type to another if they show the necessary aptitude. Most usually, however, local authorities provide separate schools for each of these three types of secondary education.

Apart from the schools provided by local authorities there are over 600 independent schools, including the famous "Public Schools," and 164 other schools which retain a large measure of independence but which receive grants direct from the Ministry of Education. All of these provide secondary education of the grammar type to a further quarter of a million children.

Pupils pass into the maintained secondary schools at the age of eleven when the basis of selection for grammar or technical schooling — as against the more general "modern" education—is by a test of attainment in English and arithmetic, combined with an estimate of potential ability.

The independent "Public Schools," however, usually recruit at thirteen and require applicants to take the "Common Examination for Entrance;" this includes stringent tests in English, history, geography, French, Latin, arithmetic, algebra, geometry and scripture.

"GRAMMAR" AND "TECHNICAL" SCHOOLS

About 24% of an age group qualify for grammar and independent schools, about 4% for technical schools. The aim of these schools is to provide a broad general education and to prepare the pupils for the Examination for the General Certificate of Education which is the recognized vehicle for entry into the Universities, the Training Colleges for Teachers, the advanced courses offered by the Technical Colleges, and the learned professions. This public examination—in common parlance "the GCE" is administered by examining boards who work in close liaison with the Ministry of Education and with one another, although the candidates sit in their own schoolrooms. It is generally taken at "Ordinary" level after five years of secondary schooling (i.e. at about 15 years) and again at "Advanced" or "Scholarship" level after a further two years in the "Sixth Form." The subjects offered for examination can be as few or as many as the candidates may choose. They generally offer seven or eight subjects for examination at the "Ordinary" level, and three at the "Advanced" or "Scholarship" levels, their choice being partly governed by the way they intend to use the Certificate to further their future career.

SECONDARY MODERN SCHOOLS

The remaining 72% or so of an age group attend secondary modern schools. Their main job is to provide a rounded education for boys and girls who leave school at fifteen, the statutory minimum age for leaving. However, provision of extended courses in these schools for pupils who elect to stay at school beyond the statutory minimum age has been a marked tendency recently. During the last five years, when the total number of candidates for the General Certificate of Education (described above) has advanced by 50%, the number of entries from the secondary modern schools has increased three-fold.

CURRICULA

The local authorities impose no curriculum requirements upon the schools they provide and maintain—other than the statutory requirement for religious instruction laid down by the Education Act of 1944. The pattern of provision accordingly varies widely from school to school

SCIENTIFIC AND TECHNICAL TRAINING

Within ten years, Britain hopes to double the present number of university trained scientists and engineers that she produces each year. An account of scientific and technical training at British Universities and technical colleges and institutions was given in an article in *British Affairs* for March 1957.

but is of course governed by examination requirements. Secondary schools, however, and particularly the grammar schools, plan the curriculum in relation to a working week of about 35 forty to forty-five minute lessons. Worked into this program are ten or twelve subjects which all the pupils study for at least three years.

LANGUAGES

In the grammar schools, Latin is taken by the majority of the pupils for at least two years, French for five. German is the traditional supplementary for those who show talent in modern languages, though Spanish is growing in popularity. Here and there Italian and even Russian are to be found. Greek maintains its steady hold for those whose aptitude is for the Classics. French is commonly taught in the secondary technical schools, and increasingly, though less commonly, in the secondary modern schools.

"MATHS"

Mathematics is taken by virtually all pupils in secondary schools; in grammar and technical schools the subject usually receives a period a day. Post-war developments in the teaching of this subject have shown a strong move towards building a course which combines the several elements of arithmetic, algebra, geometry and trigonometry into a unified whole, and which aims during the five-year course to "Ordinary" level to provide an introduction to the differential and integral calculus. The course which leads to the examination at "Advanced" or "Scholarship" level carries this branch of the subject to a high level and includes advanced algebra, advanced trigonometry, pure and analytical geometry, and mechanics. In popularity, mathematics ranks second only to English at the "Ordinary" level, and is followed in order by French, science, geography, history, art, practical subjects, and Latin, in a list of over 50 different subjects which may be taken.

SCIENCE

Science usually begins modestly with a general course taught to all pupils about three times a week, while in the fourth and fifth years a continuation of this course is an alternative to separate courses in physics, chemistry, and biology, or a combination, such as physics-with-chemistry. This variety of choice makes it possible for schools to cater for the pupils' differing needs, interests and aptitudes for science, and for the differing appeal which the subject makes to the sexes. Whereas the proportion of girls who offer a science subject in the G.C.E. is not significantly different from the proportion of boys who do so, the boys outnumber the girls in their preference for physics and chemistry in the ratio of about three to one, while with biology the proportion is reversed.

The proportion of "Sixth Form" (i.e. advance level) boys who study science is now 60 per cent in maintained grammar schools, 50 per cent in Direct Grant schools and 40 per cent in independent schools; with girls it is probably less than 20 per cent. The most favored combinations of science subjects in the Sixth Form are mathematics, physics and chemistry or physics, chemistry and biology. Thus physics has now become the most popular subject to take at the "Advanced" or "Scholarship" levels in the G.C.E.; the succeeding order of subjects being mathematics, chemistry, English, history, French, biology, geography and Latin in a list of more than thirty.

SCIENCE VERSUS "ARTS"

Science has now taken the lead — but has it won ground at the expense of the Arts? In absolute numbers, far from it. More and more boys and girls are studying arts subjects in the Sixth Form than ever before. Proportionally, however, there has been a swing to Science. This is reflected in university enrolments, which have increased overall by 76 per cent above their pre-war levels: whereas science enrolments have risen by 83 per cent, the corresponding growth for arts subjects has been 70 per cent; during the same period the full-time enrolment in Technical Colleges has gone up by more than three hundred per cent.

Does science now attract the best brains? This is a question no one has yet attempted to answer, but it is reasonable to conjecture that where there is freedom of choice and because aptitude is decisive, the ablest still continue, as they always did, to take the path which suits them best. The important task of the schools in the future is to avoid a schism. That is why attention is increasingly being paid to the dangers of too early specialization and to the need for keeping a proper balance of arts and science subjects and to forging stronger links between them.

Britain balances her current account. Questions about sterling today arise from its international use. Should Britain cut loose from her responsibilities as international banker?

No Backsliding on Sterling

*Reprinted from "The Banker"**

Now that sterling is recovering strongly from the speculative attack, debate on the causes of the crisis and lessons for the future has come further into the open. The official diagnosis and prescription have been attacked root and branch from certain circles, outside party politics, that attribute all the ills to Britain's rôle in the sterling area and its maintenance of sterling as an international currency; this, it is alleged, imposes grave and unnecessary burdens on the country's prosperity, and should be abandoned at the first opportunity.

Why, it is being asked in the inevitable search for a scapegoat, does Britain's industry have to labor under the burden of 7 per cent Bank rate and heavy cuts in projects of highly desirable public investment? Britain's domestic economy is not physically over-strained; and on external account it achieves a surplus of over £200 million a year. The 1957 sterling crisis—as that of the Suez months—was attributable wholly to the weakness in what has been called Britain's banking position. By maintaining sterling as an international currency, it is said, Britain makes itself unnecessarily vulnerable to every disturbing influence, economic or political, in a notoriously disturbed world.

It is worth spelling out, and recalling what is at stake in the present effort to defend sterling by liberal means.

BRITAIN AS BANKER

The fact that sterling is so widely held, and can be freely converted into dollars at a very modest discount below the official rate, does make it especially vulnerable to disturbances. A banker always tends to be more vulnerable than a trader. But the extent of the dangers inherent in sterling's present status has been greatly exaggerated in the recent experience, by two distinct influences, one short term, the other dating back to the war. The immediate stress was the weakness of world confidence in Britain's domestic economy—above all, in the future purchasing power of sterling. This was the underlying cause of the drain of the late summer.

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The banking commitments are a source of weakness only if the banker himself is judged weak. They do not impose a domestic economic policy contrary to domestic and trading interests—would any critic contend that continuation of the inflation of prices by the post-war average of $4\frac{1}{2}$ per cent a year is sustainable by the British economy?—but they do demand that domestic viability shall be, and be seen to be, above suspicion.

In Britain's present circumstances, moreover, the sensitivity of sterling to signs of domestic weakness is naturally increased further by the shortcomings in the technical banking strength—the undesirably small ratio of quick assets, the official gold and dollar reserves, to the immediate liabilities, the sterling balances. This, it must be emphasized, is the continued manifestation of a weakness that was the automatic result of Britain's war effort. At around £3,500 millions, the sterling balances of all overseas countries were at end-June no higher than they were at the end of 1947 (making rough adjustment for the changes in the official definition). The official holdings of gold and dollars, at \$2,380 millions, were some \$300 millions higher—whilst expressed in sterling, at the respective rates of exchange since and before the 1949 devaluation, the ratio to liabilities was notably better, at 1 : 4 instead of 1 : $6\frac{3}{4}$. Thus there has been no net strain from repayment of past indebtedness. Temporary strain has not unnaturally been felt from this source at times of major suspicion of sterling; but the building up of these balances at other times has been a valuable source of strength and a buffer to fluctuations in Britain's foreign payments.

STERLING LIABILITIES

While their aggregate level has remained roughly the same in the past decade, there have been very big changes in the composition of the sterling balances. In the first place, the balances of the non-sterling countries have been roughly halved, to some £570 millions. The major counter-movement has been provided by the colonies, whose balances have risen from under £500 millions to £1,300 millions. Among the independent members of the sterling area, the very large balances built up by India during the war have been very heavily drawn down; but this has been offset by accumulations by Australia and other dominions. It is sometimes said that this switch in ownership is itself an element of future danger; but it is difficult to see why. The colonies, especially as they emerge to independence, will certainly wish to draw on some of their London funds to finance industrial development: but at the worst they could hardly do so faster than India has done in recent years, while, especially if they can be confident of the preservation of the value of their London assets, they may see the example of India as a pointer to caution. Given the essential con-

fidence, again, there is every reason to expect the sterling balances of continental and other non-sterling countries to be rebuilt from the exiguous levels left by the recent crises. Britain still needs to set aside, of course, from its current surplus, a reserve ready to meet the demands of the colonies or other creditors; indeed, the more this is done, the greater will be the additional inflow to the reserves from the return of the very large funds lost in the long bear attack.

There is in any case no alternative to an orthodox approach to the sterling liabilities. Those liabilities are to-day a starting-off point for policy, not a question of issue. Very few people—though there have been a few—have suggested that Britain should break its financial commitment and obligation to the territories that it has governed in trust.

CURRENT EXCHANGE COMMITMENTS

Equally, though this may not be so readily apparent, there is no possibility of partial retreat from current exchange commitments. The effective convertibility of sterling into dollars for all non-residents, it is true, places upon sterling much of the strain arising from the dollar difficulties of the non-dollar world as a whole—though again, that strain will be especially strong when sterling is weak. It may be unjust that Britain alone should shoulder this burden, and in an ideal world the foreign beneficiaries, which include every trading country in the world and not least the United States, would no doubt be glad to offer a common support of the key currency. But such ruminations are irrelevant to the immediate question. This is simply: are the burdens inherent in the present system so large that Britain would be better served by discarding them?

It is difficult to exaggerate the repercussions that would inevitably follow from such a step. The transferable account area, linked to the sterling area itself, is far and away the most important mechanism maintaining reasonable freedom of payments throughout the world. Without transferable sterling, the European Payments Union would be what its name implies, a clearing house for Europe—instead of, as it is now, in conjunction with sterling, a clearing house for payments from Germany to Australia, from Japan to Holland, from China to Peru. If Britain rescinded the international character of sterling, if it re-instituted bilateral accounts, the multilateral basis of the great bulk of world trade built up since the war would be destroyed. At one stroke every trading country of the world would suffer a drastic diminution in its international liquidity—beside which the effect of the recent dip in commodity prices would pale into insignificance.

STERLING — THE INTERNATIONAL CURRENCY

“Another condition for the smooth functioning of the Bretton Woods system is an adequate level of monetary reserves . . . Sterling finances perhaps 40 per cent of world trade, yet the United Kingdom reserves are less than 4 per cent of the world total. That is the most important single fact in the world currency situation.”

— **Sir Oliver Franks**

Chairman of Lloyds Bank

STERLING: AN INTERNATIONAL ASSET

Here, then, is seen the underlying and irreplaceable benefit, to Britain and the world, of free and strong sterling: few of those who recently have been wondering whether it may not be possible to curb those troublesome stresses arising from sterling's international character count among their aims a strait-jacket on world trade and a drying-up of world liquidity.

While rebuilding of Britain's reserves holds the first claim on the current surplus, there may be a case for attempting to limit new commitments of long-term external financing. But there should be no disguising the sacrifice involved, in long-term support for British exports—not to speak of the great political implications of a slowing down of overseas investment. Once again, paradoxically, those who urge this most strongly often regard themselves as internationalists with a special leaning to the under-developed countries.

Morally, politically, above all economically, Britain's future lies in maintaining the international connection to the full. For safety, that probably requires a current surplus of around £ 400 millions a year. This has been enough to convince some people that an alternative must be found. But is the task so forbidding? Germany managed a current surplus—and this excludes speculative leads and lags—of £ 470 millions in 1956, and this year the surplus has been running at no less than £ 640 millions a year. A surplus of £ 400 millions for Britain, let it be repeated, represents some 2¼ per cent of gross national product, and no more than 3 per cent of total consumers' expenditure. That is not an unreasonable price to pay for the only kind of trading world in which Britain can prosper.

This year, the Defense White Paper is a progress report on the implementation of the five year policy for defense formulated a year ago. It also summarizes Britain's attitude to disarmament.

Britain's Contribution to Peace and Security

The new Defense White Paper opens with a frank appraisal of the uneasy balance of arms existing between the East and the West on which, today, the prospects of peace depend. The British Government has no doubt of the West's ability to maintain its side of the balance: "there is no military reason why a world conflagration should not be prevented for another generation or more through the balancing fears of mutual annihilation," the White Paper says, but adds that something better than this "mournful prospect" must be aimed at. It asserts that the only way towards a more secure world is through mutual disarmament.

The difficulties of disarmament agreements are not underrated: there may be further complications to those already met. For example, the emergence of additional nuclear powers and the fact that the problem is not confined to that of reaching agreement between Russia and the West: in the next decade the resources of China will have to be reckoned with as an increasingly important element in the balance of power.

DISARMAMENT THE GOAL

But the ultimate aim must be comprehensive disarmament, coupled with comprehensive inspection and control by a world authority. This is stated firmly. "Nothing less than this makes sense. It may seem a long way off. But it is just as well to recognize it and proclaim it as the final objective." Britain favors an approach by stages. But great care must be taken at each stage to maintain the balance of power which, for the present, "constitutes almost the sole safeguard of peace."

The White Paper sums up the "entirely different military positions" of the two sides. The Soviet Union's basic strength is thought to lie still in her overwhelming superiority in conventional arms and military manpower: the West continues to rely for its defense primarily on the deterrent of nuclear weapons. The West will never start a war against Russia. But, the White Paper says, the "stark facts" should be stated plainly; if

Russia was to launch a major attack even with conventional forces only, the West would hit back with strategic nuclear weapons. It was erroneous for anyone to think that the West, if attacked, would flinch from using its nuclear power.

This then is the background to any future disarmament moves. The West have never resisted the idea that stocks of nuclear weapons should be progressively reduced, but they cannot agree to this without fully compensating reductions in conventional forces.

Since there are risks in leaving things as they are, it was thought justifiable, within reasonable limits, to accept risks in trying to bring about agreement. Hence the Western proposals adopted by the UN which were opposed by the Soviet bloc only. Hence the continued willingness expressed by the NATO Governments to discuss the Soviet proposals, together with the Western proposals, and any other proposals from any other quarter. It would be unthinkable to give up trying, the White Paper remarks, until every conceivable possibility has been exhausted. Meanwhile the free world cannot afford to lower its guard.

COLLECTIVE DEFENSE — INTERDEPENDENCE

The very success of the West's deterrent policies are thought to have compelled the Communist powers to concentrate their efforts on political subversion, economic penetration and, where the risks to themselves are not too great, indirect military action. This calls for the treatment of the Communist threat in all its forms as an indivisible problem through collective action. It is through the three regional collective systems, NATO, The Bagdad Pact, and the South East Asia Treaty Organization (SEATO) that Britain will continue to make her main defense contribution.

This involves acting on the principles of interdependence formally enunciated by President Eisenhower and Mr. Macmillan at Washington D.C. in October 1957. Interdependence in the North Atlantic Alliance should mean getting away from the idea that each member nation must continue to maintain self-contained national forces: it should lead to the joint planning of weapon research and production, and technical studies are now proceeding with the French, German and Dutch Governments. On interdependence between Britain and the U.S., the White Paper has this to say:

"Close co-operation is being maintained with the U.S. and Canada on a number of important projects. If the American Congress approve the proposals to amend the Atomic Energy Act, the scope for fruitful collaboration will be greatly extended. In that event, the British atomic

research and development program, will be reviewed with the object of eliminating duplication and ensuring the most effective contribution to the joint needs of the Western Alliance."

THE NUCLEAR DETERRENT

The American Strategic Air Command is recognized as providing the primary deterrent, but Britain is now making an increasingly significant contribution. She has a substantial and growing stock-pile of kiloton (atomic) weapons. British megaton (hydrogen) bombs are now in production and are being delivered to the RAF. The White Paper reports on other special weapons developments. These are the highlights:

— Britain's "Vulcan" and "Victor" bombers, now entering squadron service with the RAF alongside the "Valiants," can fly as high and as fast as any other bombers in service in any other country.

— Progress is being made with propelled bombs which, released at a considerable distance from the target, make it unnecessary for the carrying plane to enter the more heavily defended target area.

— The radar watch system is being improved by being more fully linked with the continental system.

— Fighter aircraft whose duty is now solely the protection of bomber bases, are being supplemented in this role by British short range ground-to-air missiles. These will be deployed this year.

— Britain has made an agreement with the US for the use of IRBM's.

— A British ballistic rocket is being developed in close cooperation with the US. It is designed for launching from underground.

— Now that Britain has a substantial strategic bomber force and a growing stock-pile of nuclear weapons of her own, it has become necessary to coordinate operational plans with the USAF.

CONVENTIONAL FORCES

Not only in NATO, but in the Bagdad Pact and South East Asian treaty areas, conventional forces are to be maintained and, as announced last year, will be backed by a strong and mobile Central Reserve based in Britain itself. Units of the Central Reserve will be kept at a high state of readiness with much of their heavy equipment, vehicles and other supplies stored at focal points such as Singapore. Additional aircraft, including the new Britannias, are being ordered to provide the necessary long distance air lifts.

The main troop dispositions overseas will be the 100,000 men stationed at Middle and Far East bases and an army of 55,000 in Germany. During

1957-58 this force was reduced from 77,000 to about 64,000. The further reduction has been agreed to by the Western Allies.

But the balance of payments problem raised by stationing troops in Germany remains a serious one. Independent NATO experts have confirmed that the foreign exchange cost to Britain in 1958-59, estimated at about \$132 million, is a heavy additional burden. The British Government, the White Paper says, "have been obliged to state clearly that, in the event of adequate financial assistance not being forthcoming, they will reluctantly have to reconsider the size of the British land and air forces they can afford to retain on the Continent."

DEFENSE FINANCE

The estimated cost of the defense program before taking into account receipts in respect of the local costs of British forces in Germany and receipts from the United States is:

	<i>£ million</i>
(a) as estimated for 1957/58	1,483.03
(b) as estimated for 1958/59	1,465.45
Reduction in cost of program	17.58

Receipts from the United States and Germany for 1957/58 were estimated to be:

	<i>£ million</i>
(a) From the United States	12.75
(b) From Germany	50.00
Total	62.75

In 1958/59 no receipts from the United States will be appropriated in aid of Service Votes. The local costs of the British forces in Germany are estimated at the Deutschmark equivalent of £47 million. The estimated cost of the defense program after deducting receipts from the United States and Germany for 1957/58 and the local costs of British forces in Germany for 1958/59 is therefore:

	<i>£ million</i>
(a) as estimated for 1957/58	1,483.03
less	62.75
	1,420.28
(b) as estimated for 1958/59	1,465.45
less	47.00
	1,418.45
Reduction in cost of program (as adjusted)	2.00

THE ROLE OF SEA POWER

The role, composition and disposition of the Royal Navy have been reviewed during the past year.

Russia's formidable submarine force has led to plans for concentrating the Royal Navy's efforts increasingly in the anti-submarine role. Since the Navy will, through NATO, be operating in conjunction with other allied navies, a self-contained all-purpose fleet is not the objective in this area. East of Suez, on the other hand, a balanced all-purpose fleet of considerable strength will be maintained and based on Singapore.

In addition, minor units will be maintained in the Persian Gulf, at Hong Kong and in the West Indies and South Atlantic Stations. Close operational contact is maintained with the navies of other members of the Commonwealth.

The overall reduction in naval forces foreshadowed a year ago will lead to corresponding economies in dockyard and reserve facilities. Technological advances will be maintained however: a number of important projects are on hand including the development of a nuclear submarine. The US is giving valuable cooperation.

DEFENSE MANPOWER

In accordance with last year's policy statement reductions in the size of the forces are being made. At the end of March 1958 the three services will have a combined strength of 606,000 (Navy, 99,000; Army, 325,000; RAF, 182,000). This represents a reduction of 83,000 during the current (1957-58) year. As announced last year the Government are planning to bring compulsory National Service to an end by December 1962 and to rely thereafter on combined regular forces numbering about 375,000. Nothing has so far happened to revise this figure or to alter the Government's views about the prospects of recruiting the regulars needed. An independent committee has, however, been set up to make a fresh and comprehensive study of recruiting problems.

New rates of pay for all ranks come into force early in April 1958. All regulars will receive increases in weekly pay of 14s., 17s.6d., or 21s. depending on their length of engagement. Lower rates for recruits will be abolished. Junior officers will get a pay increase proportionately larger than that for senior officers. A second Lieutenant will get an increase of £73 p.a. A Lieutenant-Colonel £109 p.a. Marriage and separation allowances are to be increased: accommodation and other conditions of service will be improved both at home and overseas.

COST OF DEFENSE

For the year 1957-58, the Defense Estimates, before the deduction of expected receipts from Germany and the United States, amounted to £1,483 million, and, after their deduction, to £1,420 millions. The Admiralty and Ministry of Supply will require supplementary estimates amounting to £42 millions.

The Defense Estimates for the coming year, 1958-59, amount to £1,465 millions, before taking into account receipts in respect of the local costs of the British forces in Germany. As in previous years, these costs (estimated at £47 millions for 1958-59) have been included as appropriations-in-aid. The estimates to be presented to Parliament will thus be reduced by that amount and come to £1,418 million.

Within these reduced estimates, it has been found possible to absorb increased costs in civilian wages, in Service pay, allowances and compensation, and a reduction in American aid of £13 millions. These additional charges, amounting to over £100 millions, have been met within estimates totalling about £2 millions less than those for 1957-58, or about £44 millions less than the original and supplementary estimates combined.

In a period of protracted international tension, the maintenance of a stable currency and a healthy economy is an indispensable element in national defense. The favorable economic effects of the new defense policy announced a year ago are already beginning to make themselves felt. The proportion of the working population in the Services or supporting them has fallen. The claims on the metal-using industries have been appreciably reduced, and the call on scientific and engineering skills is easing.

It will be the Government's aim to keep military expenditure and its demands upon resources within the limits of the country's economic capacity, while at the same time ensuring that Britain will continue to play a leading part in upholding freedom and peace.

REPORT ON DEFENSE

The progress report on Britain's defense is this year contained in two White Papers published in February. They are:

Britain's Contribution to Peace and Security (Cmnd. 363)

Defense Statistics 1958/59 (Cmnd. 364)

Copies are available from BIS Sales Section. Cmnd. 363 is 18 cents plus 5 cents mailing. Cmnd. 364 is 14 cents plus 5 cents mailing. Together they are 32 cents plus 5 cents mailing.

*Imports for the first time surpassed £4,000 million in 1957.
Exports also rose, by nearly five per cent.*

Britain's Overseas Trade

Both exports and imports in 1957 exceeded those in any previous year by a considerable margin.

The value of exports rose by nearly five per cent with an increase of £153 million to £3,325 million. If silver bullion repayments are excluded in both years (the last instalment of the war-time silver loan was repayed in 1957) the value of exports rose $5\frac{1}{2}$ per cent between 1956 and 1957. Re-exports, however, after rising sharply in the two preceding years, fell back in 1957 by 9 per cent to £133 million, the reduction being due principally to lower trade in rubber.

For most of 1957, *export prices* maintained the rising trend which began early in 1955. But in the last quarter the rise was checked. The average level for the year was $4\frac{1}{2}$ per cent higher than for 1956, compared with a rise of 2 per cent in 1955 and something under 4 per cent in 1956.

The value of imports for the first time surpassed £4,000 million, the total of £4,076 million being £189 million, or five per cent greater than in 1956. The trend of imports during 1957 was strongly influenced by price movements. After falling slightly in the middle of 1956, the index of import prices rose during the period of the Middle East crisis, and in the opening months of 1957 was 5 per cent above the 1956 level. But declining prices later brought the index to its lowest point since the Fall of 1954. Thus import prices for the year as a whole were only $1\frac{1}{2}$ per cent above 1956.

VOLUME OF TRADE

The growth of the *volume of exports*, however, did not maintain the rate of 5 to 6 per cent achieved in the three previous years. For the year as a whole the increase was about 3 per cent. But the increase in the volume of exports covered most groups. Chemicals, leather goods, iron and steel, and non ferrous base metals all showed increases of 10 per cent or more over the previous year.

The volume of imports. In the first half of the year there was little change in the overall volume compared with 1956. In the following

TABLES ON BRITAIN'S OVERSEAS TRADE

I. U.K. OVERSEAS TRADE
(£ million)

	1956	1957
Imports (c.i.f.)	3,886	4,076
Exports (f.o.b.)	3,172	3,325
Re-exports (f.o.b.)	146	133
Visible Deficit	568	618

III. U.K. TRADE WITH U.S.A.
(U.S. \$ million)

	1956*	1957*
U.K. Imports (c.i.f.)	1,142	1,352
U.K. Exports (f.o.b.)	680	683
U.K. Re-Exports (f.o.b.)	44	41

Apparent deficit 418 628
 *exports include the repayment of silver
 bullion.

V. MAIN U.K. EXPORTS TO U.S.A.
(f.o.b. in \$ million)

	1957
Road vehicles and aircraft	146
Whisky	80
Machinery (non-electric)	59
Non-ferrous base metals	41
Miscellaneous manufactures	37
Machinery (electrical)	35
Woollen goods	33

II. VOLUME OF U.K. TRADE
(1954 = 100)

	1938	1956	1957
Total Imports	111.0*	110.6	113.0*
U.K. Exports	60.0*	113.5	116.0*

*approximate

IV. U.K. TRADE BY AREA
(Percentages: 1957)

	U.K. Imports	Total U.K. Exports
Sterling Area	38.1%	44.1%
Western Europe	23.8%	27.1%
U.S.A.	11.8%	7.5%
Canada	7.9%	5.8%
Soviet Union	1.7%	1.5%
China	0.3%	0.4%
Rest of World	16.4%	13.6%

VI. MAIN U.K. IMPORTS
FROM U.S.A.
(c.i.f. in \$ million)

	1957
Petroleum	186
Cotton	175
Cereals	165
Tobacco	133
Machinery (non-electric)	111
Chemicals	68
Non-ferrous base metals	61

three months, with industrial production having risen some 3 per cent, the volume of imports was at a higher level, but by the end of the year it again showed signs of easing. For the year as a whole, the increase over 1956 was about 5 per cent. Imports of steel and coal were substantially less than in 1956 and of petroleum were only slightly up, in contrast to the sharply rising trend of previous years. The total volume of food imports was slightly higher, maintaining the general trend of recent years. Imports of finished manufactures again showed a considerable increase.

EXPORTS TO NON-STERLING MARKETS

In recent years, exports to the non-sterling world have increased more than exports to the sterling countries. Total exports to the non-sterling world rose by 5½ per cent against a 4 per cent increase to the sterling area. Total exports to the dollar area (excluding silver bullion repayments) were up by 9 per cent in 1957 against a 24 per cent rise in 1956. Exports to Europe were up by 4 per cent (against 11 per cent) and to the rest of the non-sterling world by 3½ per cent (against 17 per cent).

The increase in total exports to the dollar area included a rise of 6½ per cent in shipments to the United States, which was more than accounted for by the jump in the exports of cars. Exports to Canada were up by 9½ per cent, more than half the rise being in cars, ships and boats. Exports to the rest of the dollar area (particularly Mexico and Venezuela) were well up at 14 per cent more than in 1956.

THE CHANGING PATTERN OF EXPORTS

Since World War II, engineering exports have played a much more prominent part in Britain's export trade than they did up to 1939. The "traditional" products have given way to them. This trend is still continuing. In 1938, engineering products and metals constituted 38 per cent of British exports. By 1957, they formed over 55 per cent. Textiles, which today account for about 10 per cent of exports accounted for about 20 per cent in 1938.

As in 1956, the pattern of imports in 1957 bore a close relation to the course of industrial production which showed a slight rise last year. Imports of basic materials, and goods largely required for further industrial processing, together increased by about 3 per cent both in value and volume. There was a further strong rise (16 per cent) in imports of finished manufactures, and a modest increase (3 per cent) in food-stuffs which had shown little change between 1955 and 1956.

THE CHARACTER OF U.K. — U.S. TRADE

Britain still buys far more from the United States than she sells to her: hence the continuing dollar deficit. A simple four-page pamphlet, **Trade Between Britain and the U.S.A.**, shows clearly how important mutual trade is to both countries.

Copies are available free of charge from the Circulation Section, British Information Services.

Britain's exports rose again in 1957 and are now nearly double the volume of 1938: the value is seven times as high.

U. K. Export Achievements

Automobiles for the United States. Britain's Motor Show last October was so successful that arrangements for extra shipping at the rate of one ship a week had to be made to cope with the orders received from North America. One contract alone from the U.S.A. was for \$30 m. worth of Austin, Austin Healey, M.G. and Morris cars; Morris Minor sales in the U.S. increased eight-fold in the first 10 months of 1957. Dealers in the U.S.A. and Canada have placed orders for Jaguar cars worth \$23 m. Standard reported that the introduction of the Triumph Sedan and the Triumph Estate Wagon to the U.S.A. attracted \$11 m. worth of orders for the last three months of 1957 and further orders afford prospects of selling \$25 m. worth in the first half of 1958. Export orders for Vauxhall's new Velox and Cresta models already total almost £15 m.

Generator Transformers for the Power Authority of the State of New York. Ferranti Limited of Hollinwood, Lancashire, have been awarded a contract valued at \$3,925,250 by the Power Authority of the State of New York for 13 generator transformers for the Lewiston Power Station of the Niagara Power Project situated on the plateau on the Niagara River about three miles below the Falls in the town of Lewiston. This contract, the twelfth awarded to Ferranti Limited by United States buyers in recent years, is believed to be the largest one for transformers so far placed in Britain by the United States. It brings the total number of transformers supplied, or under construction by Ferranti Limited for the United States to 75 of a total capacity of nearly 5,000,000 kVA and a value of almost \$10,000,000.

Natural Gas Pipeline System in Lower Austria. Constructors John Brown Limited have been awarded a £1½ million contract for the construction of a natural gas pipeline system in Lower Austria by Niogas, Niederosterreich Gasvertrieb A.G., the Lower Austria organization responsible for the distribution of gas fuel. The pipeline system will cover a total of 160 miles and Constructors John Brown will use the technical services of their American associates, Williams Bros. of Tulsa, Oklahoma. Austrian sub-contractors will carry out a considerable part of the work and Austrian labor and equipment will be used.

Diesel Engines for Finland. Another bulk order for diesel engines for Finnish vehicles has been placed with Leyland Motors Limited, of Leyland, Lancashire.

The new contracts call for 1,300 engines valued at some £500,000. They are the latest in a series from Finland which altogether now cover a total of more than 5,000 engines of Leyland manufacture. Demand for these engines in Britain and abroad has recently increased so rapidly that the production of these units at Leyland factories has been stepped up by 35 per cent during the past twelve months. Nearly £5 million worth of engines are scheduled for production for installation in vehicles of United States, Canadian, Belgian, Dutch, Finnish, Swedish, Spanish and Danish manufacture.

Radio Transmitter for South Africa. Marconi's Wireless Telegraph Company have received an order from the South African Posts and Telegraph Department for a 10 kW high-frequency independent sideband radio transmitter for installation at the transmitting station at Klipheuval, in Cape Province. The transmitter will be used for telephone and telegraphic traffic with the United Kingdom which was formerly carried by a Marconi multiplexer equipment supplied in 1930.

Strong-room doors for the Bank of Montreal. An order for two vault doors for the main strong-room of the new headquarters of the Bank of Montreal each to weigh over 33 tons, has been placed with the firm of Chubb & Son's Lock and Safe Company Limited. The order has been obtained in the face of very strong competition and the doors will be specially designed to meet the more rigorous security requirements necessitated by the atomic age.

British motor cycles for the Swedish Army. British-made Triumph motor cycles have been chosen for service with the Swedish Army. First deliveries of 100 machines—part of a "substantial" initial order worth £50,000—are now being made. This information was announced by the Triumph Engineering Company Limited of Coventry. The cycles will be equipped with brackets so that skis can be fitted to enable the machines to be used over snow.

Fire Extinguishers for Italy. After tests and negotiations extending over two years, ATAC, the Municipal Traffic Combine of the City of Rome, has decided to standardize entirely on Nu-Swift pressure-charge-operated fire extinguishers and has placed its first order. This was recently announced by Nu-Swift Limited, of Elland, Yorkshire. ATAC, which has 15,000 employees and is reputed to be the largest surface passenger transport organization in Europe, has previously used Italian-made extinguishers.

Flour Mill for Pakistan. An order for a new flour mill capable of milling some 130 tons of wheat every 24 hours has been placed with Thomas Robinson & Son, of Rochdale, by Aftab Flour Mills, of Karachi, Pakistan. The new mill will be sited in the industrial area at Lhandi, 15 miles from Karachi. It will house a wide range of modern machinery, including a battery of Robinson square sieve sifters, a machine which can handle up to three times the capacity of previous models. Production of the new square sieve has been more than

doubled by Thomas Robinson & Son to meet a large influx of orders, particularly from overseas.

More Car Parking Meters for Switzerland. The first large installation of car parking meters in Switzerland started operating on October 25, 1956, when 149 British made Park-o-Meters were officially installed in several of the principal thoroughfares in the center of Zurich. Zurich now has 700 Park-o-Meters in operation and the city authorities state that, in addition to contributing to the general regularizing of traffic, they enable a quicker change round of vehicles to the advantage of businesses and shops. Other cities in Switzerland quickly followed Zurich's example with trial installations. Berne has erected 140, Geneva 48, Lucerne 24 and Baden 15.

New Oil Terminal in Persian Gulf. Richard Costain Ltd. and Constructors John Brown Ltd. have been awarded a contract by the Iranian Oil Exploration and Producing Company to develop facilities for a new terminal in the Persian Gulf at Kharg Island which will make it possible to increase production from the oilfield at Gach Saran. The complete project is estimated to cost £20 million. Other firms involved are from the Netherlands and the United States.

Rolling Mill Plant and Hydraulic Presses for Germany. Orders worth over £500,000 to supply rolling mill plant and hydraulic presses to Germany have been received recently by Loewy Engineering Company, of Bournemouth. The contract is for two heavy horizontal hot strip coilers of a design for which Loewy holds an important contract.

New Liner for Canadian Pacific. Canadian Pacific have now signed a contract with Vickers-Armstrongs Limited for the building of a new passenger liner at Naval Yard, Walker-on-Tyne, with machinery built at Barrow-in-Furness. The contract is worth about £8½ million in dollars. It was announced in July 1957 that contract negotiations had been entered into between Canadian Pacific and Vickers-Armstrongs. Since July there has been appreciable work on hull design for the 27,500-ton ship at the Vickers-Armstrongs Ship Model Experiment Tank, at St. Albans. The new liner will be the largest in the Canadian Pacific fleet and will carry 200 first-class and 875 tourist passengers. She will be fully air-conditioned throughout including the crew's quarters, and is specially designed for the Canadian service during the St. Lawrence season and for cruising in the winter. The maiden voyage from Liverpool to Montreal will be in the spring of 1961.

20,000 ton Tanker for Bermuda. An order worth over £1 million for a 20,000-ton tanker was recently announced by the Sunderland shipyard of Sir James Laing & Sons. The vessel is for Ropner (Bermuda) Limited. Doxford & Sons, of Sunderland, are supplying the machinery, a six-cylinder turbo-charged engine.

The Industrial Court and the Wages Councils are two important but little understood parts of labor relations in Britain. Their significance is described in these reports.

Labor News From Britain

The structure of industrial relations in Britain is established mainly on a voluntary basis and rests on the organization of employers and workers into employers' associations and trade unions. These organizations discuss and negotiate terms and conditions of employment and other matters affecting the workpeople at their work.

In some cases, these negotiations are conducted simply by *ad hoc* meetings, which are held when necessary, of the organizations concerned; in other cases voluntary joint machinery has been established on a permanent basis. Normally these arrangements suffice to settle all questions which are raised, but provision is made for matters not so settled to be referred to independent arbitration.

I. THE INDUSTRIAL COURT

A dispute about pay between the workers on London's 'buses and the publicly-owned Corporation which runs them is being put to Britain's Industrial Court by the Minister of Labour. Both sides to the dispute have agreed to this course because the normal procedure of negotiation has brought no agreement.

"Court" is perhaps something of a misnomer for this three-man tribunal which meets in a Metropolitan oasis of peace close by the Houses of Parliament and Westminster Abbey. The Industrial Court has no place in Britain's judicial system and it conducts its proceedings with the minimum of legal formality. Moreover, the Court is completely independent and is not subject to Government control or influence.

TERMS OF REFERENCE

Essentially the Industrial Court forms part of the machinery for voluntary arbitration in Britain. It works on principles put forward by the Whitley Committee during the first World War.

This Committee, which examined a wide field of industrial relations,

suggested a standing arbitration council "to which differences of general principles and differences affecting whole industries may be referred in cases where the parties have failed to come to an agreement through their ordinary procedure and wish to refer the differences to arbitration. Such a tribunal should include in its membership persons who have practical experience and knowledge of industry and who are acquainted with the respective standpoints of employers and workpeople."

The 1919 Act which set up the Court provides that it may sit in divisions and that the President may choose the members from two panels, one representing workpeople, the other employers. In practice, however, the President of the Court and two whole-time members deal with the cases, other members sitting occasionally when there is unavoidable absence among the full-time members or when a case concerns women workers. The Court may — but rarely, in fact, does — appoint assessors to help it come to a decision.

The three men who regularly form the Court today are Sir John Forster, its President, who is a Queen's Counsel with a wide experience of industrial law; Mr. Kenneth Scott, who is from the employers' panel; and Mr. G. B. Thorneycroft, who is a former trade union official. All were appointed by the Minister of Labour, whose duty it is to maintain adequate panels for the Court's work.

REGULAR MEETINGS

Since the Court is permanent and meets regularly, the members are continually widening their already considerable knowledge of industrial practice. They have heard cases from such widely differing fields as civil air transport and basketmaking, the fire service and the iron and steel industry. From time to time they visit the factory or workshop where a dispute has originated, and on occasions the Court may move from London to a provincial town where the case is local in scope.

Cases come to the notice of the Court on the direction of the Minister of Labour after he knows that both parties are willing for the Court to hear the case.

Though the Court's award is not legally enforceable, in general, since both sides agree in advance to submit their cases, they are ready to accept the findings. Once acted upon by either party, however, the award forms a term or condition of employment.

IN PRIVATE OR IN PUBLIC

Sessions in the Court are usually in private, unless both parties ask for the hearing in public. Interested parties, however, such as members

of a trade union involved, can attend the Court as spectators. Legal representatives may be employed by either side, but the intention to use expert legal aid must be made clear before the start of the case.

Naturally, the length of a hearing varies, but it is often less than a month from the time the Minister has asked the Court to act until the award is made public. During some of this time the parties are preparing their submissions.

Recognizing the value of this procedure to break a deadlock when ordinary voluntary bargaining methods have failed, a number of industries have negotiated special agreements under which they undertake to refer their disputes to the Industrial Court and accept its findings. In addition, legislation affecting the working of a number of industries, including bacon, cinematograph films, and civil aviation, mentions the Industrial Court as the judge should there be disputes over certain aspects of wages and conditions of work.

Since it started work 39 years ago, the Court has heard more than 2,600 cases. To cope with the administrative side of these cases, the Court has a small permanent staff headed by a secretary whose job is to see to the documentation necessary for the hearing and to ensure that the parties are told of the award. All awards are published officially and are on sale to the public.

II. WAGES COUNCILS

Approximately one wage earner in five in Britain has his wages fixed by a body whose orders have the force of law. Such wage-earners are found in major industries such as agriculture, distribution, catering and trucking, and in a large number of smaller ones such as drift-nets mending or button manufacturing. What is common to all these industries is that none of them is sufficiently well organized on either side for the effective regulation of wages by voluntary agreement and, as a result, in each of them a wages council or board has been set up.

BRITISH RECORD

A newsletter—**British Record**—is published every two or three weeks by BIS for those who wish to follow the British scene more closely. A specimen copy may be obtained from BIS Circulation Section. A mailing list is maintained and names will be added on request.

Some 60 such bodies today regulate, by statutory order, wages for about 3,500,000 workers, and a man who is chairman of five of them has recently been assessing their achievements and activities. He is Mr. C. W. Guillebaud, a Cambridge economist and an expert on individual relations. In a booklet "*The Wages Council System in Great Britain*" he claims that they are fulfilling the main purposes for which they were formed.

HELPS EMPLOYERS AND EMPLOYEES ALIKE

Historically, Wages Councils have an ancestry in the old Trade Boards, which in 1909 were first brought into being by Act of Parliament to tackle the scourge of "sweated" industries. The act applied them in chainmaking, lace-finishing, tailoring and paper-box making, and there is no doubt that they did much to lift the standard of earnings for many workers and protected the good employers who had found competition difficult when faced by firms thriving on "sweated labor."

This Mr. Guillebaud puts forward as one of the long-term achievements of the statutory wage-fixing machine. Another he mentions is the raising of morale, and with it the efficiency of industry. He points to the lessening of wage inequalities between different industries and within the same industry and to the general acceptance of statutory machinery by workers and employers alike as useful and necessary.

The principle on which Trade Boards were appointed changed in 1918. Instead of seeking out "sweated" industries, the Minister of Labour was empowered to make an Order to create a Trade Board for an industry where he was "of the opinion that no adequate machinery exists for the effective regulation of wages throughout the trade." Such industries in the main comprise a great number of small scattered firms where organization is difficult on both sides.

In 1945 and 1948 this wage-fixing machinery was given a thorough overhaul and a change of name. The Boards became known as Wages Councils. But whatever their name, throughout their history their structure has remained much the same, though the size of the membership may vary from one Council to another. Today a Wages Council, like a Trade Board before it, consists of members representing employees and employers in equal numbers together with not more than three "independent members," all appointed by the Minister of Labour. In practice, the "representative" members total about 15 a side, and an effort is made to keep to this figure for ease of administration though there are exceptions. The Minister also appoints the secretary and staff of the Council.

VOLUNTARY JOINT MACHINERY THE AIM

From 1918 it has always been intended that statutory machinery to protect wages and conditions in the less-organized industries should only be the beginning of stronger determination to build voluntary joint machinery through agreement between the trade unions and the employers.

Since World War II voluntary joint machinery has in fact emerged from Wages Councils in some British industries, and there is legislation granting powers for newly-formed joint industrial councils to apply for the abolition of Wages Councils. Industries where such Councils have been abolished in favor of voluntary machinery in recent years include furniture and tobacco.

A decision about wages from a Wages Council emerges first of all as a recommendation which must be displayed in a prominent place in all places of work which it affects. During the 14 days which follow, objections may be lodged and, if lodged, considered by the Council. Once these objections are disposed of or the period has elapsed without any objections, the Council finally fixes the proposals and submits them to the Minister of Labour.

At this stage the Minister confirms the proposals if he agrees with them, or he may send them back for further consideration by the Council. He may not alter them himself. Once confirmed by the Minister, however, the proposals appear as a Statutory Order, whose terms all employers are bound to accept under penalty of fine.

On a Wages Council each member has a vote, but it may be that the chairman decides on, or that a majority of the workers or employers asks for, a vote by sides. In such a case the vote of the majority of the members on either side becomes the vote of that side. At this stage the independent members do not vote, but should the two sides disagree, then the majority vote of the independent members decides the issue.

COUNCIL ON PRICES, PRODUCTIVITY AND INCOMES

The First Report of the Council on Prices, Productivity and Incomes set up in August 1957 under the chairmanship of Lord Cohen to make and publish independent studies on the state of the economy was issued in February. The two charts in the article **1958: The Economic Background** in this issue were taken from the Report.

Copies of the Report may be obtained from BIS Sales Section, price 36 cents plus 5 cents mailing.

The only publications which British Information Services sell are those published by Her Majesty's Stationery Office; but books and periodicals mentioned in this section may be read in the Library or borrowed on Inter-Library Loan.

Book Reviews

Britain and Europe by the Economist Intelligence Unit (London, 1957, 288 pp. and statistical appendix, \$2.10).

Europe, as a continent, is Britain's nearest and most important foreign market. Thus the European Customs Union of France, Western Germany, Italy, Belgium, Luxembourg, and Holland, which came into force on January 1, 1958, has far-reaching implications for Britain and her economy some of which have been dealt with in earlier issues of *British Affairs*. In particular, earnest negotiations for a Free Trade Area, in which Britain and the other Continental countries would join the "Six," are now in train.

When it was announced at the end of 1956 that Britain was ready to join in a European Free Trade Area it became evident that many British industries would be vitally affected, and although the course of events would of necessity remain in the realm of speculation it was thought possible to make an objective study of the effects on British industry.

The end-result is this handbook of some 300 pages which promises to become a standard reference book at least for some time. The book deals generally with the impact of free trade on British manufacturing and with the special problems of agriculture in its relation with the Commonwealth.

But the greater part of the handbook is devoted to detailed industry studies compiled with the co-operation and advice of countless people in British industry. The list of industries analyzed is comprehensive and includes iron and steel, motor vehicles, aircraft, textiles, toys, scientific instruments, watches and paper to give examples.

Tables and charts give point to the detailed economic reasoning and consideration of what part Britain may play in European trade (a) if there is a Free Trade Area as well as Customs Union, (b) if there is only the Customs Union. The projected figures for 1970, by which time the Customs Union should be fully in force, are estimates which show clearly how individual industries in Britain might well be affected by these developments.

But the authors have no doubt about the recommendation they have to make: On all counts they favor British participation in the movement for European Free Trade.

Less than Kin: A Study of Anglo-American Relations by William Clark (Houghton Mifflin, Boston, 1957, 168 pp., \$3.50)

Mr. Clark will already have many friends in the United States. He served BIS in Chicago and was Press Attache in Washington before joining the staff of the Observer in London. In London too he remained in the closest touch with American affairs while he was press and public relations adviser to the then Prime Minister, Mr. Eden. We therefore expect and are rewarded with something better than a merely amiable approach to the well-worn subject of Anglo-American relations. Mr. Clark offers an historical analysis of the American view of Britain and the British view of America during the last 175 years. Among the topics he considers are isolationism, both American and British, and the varying fortunes of the Anglo-American partnership.

The main thesis of "Less than Kin" is that the relationship between America and Britain is primarily one of conflict and competition, manifested in peaceful ways thanks to the "wide measure of agreement on the basic principles of life and politics" existing between the two countries. Some readers may consider that much of Mr. Clark's analysis throws doubt on the validity of his thesis, and that Anglo-American beliefs differ more profoundly than most of us on either side of the Atlantic realize. But Mr. Clark does not let us believe that the partnership is natural and inevitable and all will be provoked to fresh thought and argument by his stimulating book.

The General Strike by Julian Symons (Cresset Press, London, 1957, 259 pp., 21s.)

Duff Cooper said in his autobiography that the General Strike of 1926 "threatened the survival of Parliamentary Government and brought the country nearer to revolution than it had ever been." This quotation appears on the dust cover of Mr. Symon's book, but the message inside, while not belittling the event, denies it the quality of a social and political cataclysm.

Mr. Symons describes the event with a wealth of human detail drawn from his obviously extensive correspondence and contact with those — from both sides — who were most deeply involved, whether as undergraduates driving locomotives, strike organizers or government officials. As such his book is a valuable and enjoyable record, and it is helped by photographs and anecdotes which for many will awake memories of this extraordinary event.

But there is more to it. Mr. Symons is careful to present the actual drama in the larger setting of post World War I labor relations. He shows how the strike grew out of what had gone before, including the emergence of the Trades Union Congress and the first effective efforts to build up inter-union solidarity on a nationwide basis.

The Strike failed in spite of the solidarity of the Unions which it undoubtedly fostered. Mr. Symons attributes its failure to the failure of the leaders to press their terms for a negotiated settlement.

Mr. Symons believes that the leadership was never wholeheartedly in favor of the strike and that to those concerned with practical industrial problems of labor, the General Strike was a self destroying weapon. Unless the Trade Union Movement should seek a political weapon to overthrow the Government, Mr. Symons believes that the General Strike of 1926 will remain a unique event.

Jamaica: an Island Mosaic by Peter Abrahams (Her Majesty's Stationery Office, 1957, 284 pp., \$4.50 plus 17 cents mailing from BIS Sales Section).

Readers of government publications who open Mr. Abrahams' book are in for a pleasant surprise. Here is no dry-as-dust collection of facts and figures (though the book has a brief statistical appendix), but a perceptive and delightfully written account of the island of Jamaica, one of the most important members of the newly formed Federation of the West Indies. A commendatory introduction has been written by Sir Winston Churchill.

"Jamaica" is one of a new series of volumes on Britain's dependent territories commissioned by the Colonial Office, who have however given the individual authors a completely free hand; indeed, the authorities disclaim responsibility for the personal views expressed. The aim of the series is to bridge the gap between government Blue Books on the one hand and superficial travelogues on the other, and in this aim Peter Abrahams is brilliantly successful. He is an African by birth, well known as a journalist and novelist, and he writes of Jamaica's people and its history with love and understanding. He sees Jamaica as a place where people of Africa, Indian, Chinese and European descent have learnt to live together in harmony, and is convinced that it has much to teach the world about the problems of multi-racial existence. Mr. Abrahams, incidentally, lives out his faith. He went to Jamaica to write this book. He has returned there with his family to live.

Visitors to Jamaica would be well advised to take a copy of "Jamaica: an Island Mosaic" with them: it is well produced and illustrated (with photographs and delicate line drawings by Rosemary Grimble) and an admirable introduction to this unique and beautiful island.

B.I.S. FILM SERVICES AGAIN AVAILABLE

British Information Services announce that arrangements have been made to restore their rental and sale services of films which were withdrawn last June.

Non-Theatrical Services

An agreement has now been made with

Contemporary Films, Inc.,
13 East 37th Street,
New York 16, N. Y.

under which they will take over the B.I.S. catalogue of 16 mm films and become the officially appointed agents of B.I.S. in offering these for rental and sale as previously.

All inquiries for information about films and all applications for rental bookings, previews and sales should now be addressed to Contemporary Films.

Theatrical Services

A similar agreement in respect of 35 mm films has been made with

Lester A. Schoenfeld Films,
358 West 44th Street,
New York 36, N. Y.

All enquiries from theatrical sources should therefore be addressed in future to Lester A. Schoenfeld Films.

Television Services

B.I.S. is expanding its services for television, and has reserved all television rights in its former film library. Enquiries for such films should therefore continue to be addressed to B.I.S. offices.

THE B.I.S. PUBLICATIONS CATALOGUE

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45 Rockefeller Plaza, New York 20, N. Y.

OFFICIAL REPORTS OF THE DEBATES IN PARLIAMENT (Hansard) may be ordered through the Sales Section

	<i>House of Commons</i>	<i>House of Lords</i>
Daily Parts: Single issue	\$.18	\$.18
Annual subscription	31.95	22.05
Annual subscription (combined)	47.70	
Weekly Hansard: Single issue	\$.54	\$.36
Index to single issue	.14	.09
Index only, annual sub.	5.40	3.78
Annual subscription	24.03	14.13
Annual sub. with weekly indexes	28.08	16.83

(Plus 5 cents for mailing on orders up to \$1.00, and 3 cents for each additional \$1.00 up to \$10.00 for items other than subscriptions.)

BRITISH INFORMATION SERVICES

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